

# The Impact of A “Brief ECT Orientation Module” on The Knowledge and Attitudes of Medical Students Towards ECT in India

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## Abstract

**Background:** Electroconvulsive therapy (ECT) continues to be an intervention that attracts controversy in spite of its proven efficacy. There is limited literature on attitude and knowledge of medical students towards ECT from Asian and African countries. **Aim:** The current study assesses the impact of a “Brief ECT Orientation Module” on the knowledge of and attitudes of Indian medical students towards modified ECT. **Subjects and Methods:** The study was conducted at a tertiary care multi-specialty hospital associated with a government medical college. The students were administered the study questionnaire on Day 1 of Psychiatry clerkship. Following this, they were administered the Brief ECT Orientation Module. Assessment was made using a questionnaire with items related to knowledge and attitude towards ECT before and after “Brief ECT Orientation Module.” **Results:** Fifty-nine students completed the study. There was a significant improvement in knowledge of medical students on all the three domains of the questionnaire for assessment of knowledge about ECT-related facts. A change in attitudes towards ECT was also observed following Brief ECT Orientation Module, especially among those who witnessed ECT administration. **Conclusion:** The findings of the current study suggest that the Brief ECT Orientation Module is effective in improving the knowledge and attitude of medical students towards ECT.

**Keywords:** ECT, Medical students, Training

## Introduction

Electroconvulsive therapy (ECT) is one of the most effective interventions available for psychiatric disorders. It has been found to be effective for various major psychiatric disorders including schizophrenia, bipolar disorder, and major depression.<sup>[1,2]</sup> Its effectiveness has been documented in cases resistant to pharmacotherapy and in psychiatric patients with high suicidal risk.

However, it continues to be a controversial intervention.<sup>[3]</sup> Acceptance of ECT has been debated among medical professionals.

Studies from American and European countries have explored the knowledge and attitude of medical students towards ECT.<sup>[4-10]</sup>

There is limited literature on attitude and knowledge of medical students towards ECT from Asian and African countries.<sup>[11-14]</sup> A prior study from India reported less favorable attitudes among medical students towards ECT. The undergraduate medical curriculum in India has been criticized for inadequately preparing medical students to handle the burden of psychiatric illnesses. Psychiatric teaching and training is offered a disproportionately small amount of time during the undergraduate medical training in India.<sup>[15,16]</sup> medical students get very little information on ECT during this period.

We developed a “Brief ECT Orientation Module” for medical students. It was aimed at improving the knowledge as well as attitude of medical students towards ECT. It is important to improve the knowledge and attitude of medical students towards ECT as it helps to reduce stigma<sup>[17]</sup> and consequently improve the availability and use of this intervention.<sup>[18]</sup> Previous

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studies have shown that a brief supplementary education program in addition to the traditional medical curriculum can lead to significant improvement in knowledge and attitude of medical students and health professionals towards the mentally ill and mental illnesses.<sup>[13,19-26]</sup>

The current study assessed the impact of this Brief ECT Orientation Module on the knowledge and attitude of Indian medical students towards ECT.

## Subjects and Methods

The study was conducted at a tertiary care multi-specialty hospital associated with a government medical college. The medical college runs undergraduate and postgraduate programs in medical education. Medical students coming to Department of Psychiatry for their psychiatry clerkship (internship) constituted the study sample frame. All students consenting to participate in the study were considered eligible. We recruited students over a 6-month duration. The recruitment was conducted in different waves, as the students came for their Psychiatry clerkship for a period of 15 days in batches of 5–10.

The study design and procedure was explained to the students on the first day of Psychiatry clerkship. Those willing to participate and provide informed consent for the same were included in the study. The students were administered the study questionnaire on Day 1 of psychiatry clerkship. Following this, they underwent training using the Brief ECT Orientation Module.

### Brief ECT orientation module

The Brief ECT Orientation Module comprised two components: (a) A one-hour lecture on ECT and (b) Demonstration of modified ECT administration to a patient.

The lecture on ECT was conducted by one of the authors (TY) within the first 5 days of the clerkship. This author was not involved in questionnaire preparation and data collection. He was also not aware of the items of the questionnaire and the scores of initial evaluation. The scores were calculated at the end of the data collection period. The lecture was based on the standard textbooks on Psychiatry and ECT.<sup>[27-29]</sup> It included information on historical aspects, indications, mechanism of action, procedure, adverse effects, and effectiveness of ECT.

Demonstration of modified ECT administration to a patient admitted in the Department of Psychiatry was the second component of the module. It was carried out as per feasibility. This depended on whether any patient was administered ECT during the study period as part of the treatment plan. The treatment plan was decided by the clinician in charge of a particular patient. Hence, while all the students had an opportunity to attend the lecture on ECT, not all could witness ECT administration demonstration due to logistic issues.

We formulated a brief module to avoid it from becoming highly time intensive and, consequently, less interesting to the students. Apart from the brief module administration, the students carried on with their psychiatry clerkship as usual. The final evaluation was conducted at the end of the psychiatry clerkship when the students were re-administered the questionnaires. As mentioned earlier, brief supplementary education programs have shown significant improvement in knowledge and attitude of medical students towards mental illnesses and interventions for the same.<sup>[19,22]</sup>

### Study questionnaire

We used the questionnaire developed by Kinnair and Dawson.<sup>[30]</sup> The study questionnaire aimed at assessment of knowledge as well as attitudes of medical students towards ECT.

The first part of the questionnaire consisted of a total of 21 items aimed at assessing the knowledge of the students about indications (6 items), procedure (10 items) and adverse effects (5 items) of ECT. The students were expected to mark the items as true or false. The final score was calculated by summing up the number of correct responses in each of the three domains separately.

The second part of the questionnaire comprised of 13 items aimed at assessment of attitudes of medical students towards ECT. The students were expected to mark their responses as “agree” or “disagree” to the individual items.

Identity of study participant was kept confidential and the ethical principals outlined in the institutional ethical guidelines were adhered to during the course of the study.

### Statistical analysis

Data analysis was carried out using SPSS version 17.0 (USA). Impact of Brief ECT Orientation Module on knowledge and attitude of medical students was assessed by comparing the baseline score on the study questionnaire with the post-psychiatry internship scores using student paired sample *t* test. McNemar test was used to compare the categorical variables. Additionally, the impact of demonstration of ECT administration component of Brief ECT Orientation Module on the study variables was assessed by comparing the scores of those students who attended both components of the module and those who attended only the lecture component of the module. This was carried out using the student *t* test for knowledge questionnaire and Mantel-Haenszel statistic for the attitude questionnaire. Level of statistical significance was kept at  $P < 0.05$  for all the tests.

## Results

A total of 73 medical students posted for their internship in the Department of Psychiatry were approached for participation in the study. Of these, 66 (around 90%) agreed to participate and

returned the study questionnaire. These interns were assessed again at the end of Psychiatry clerkship. A total of 59 students returned the study questionnaire at the second assessment. The study had an 89% completion rate.

The mean (SD) age of the students included in the study was 22.81 (1.09) years. Prior to attending the Brief ECT Orientation Module, only 33.9% of the students had attended a lecture on ECT and 8.7% had witnessed ECT being administered to a patient. After completion of the Brief ECT Orientation Module, all the students had attended a lecture on ECT and 58% (34 students) had observed ECT being administered to a patient. There was a significant increase in the number of students who had attended a lecture on ECT ( $P < 0.001$ ) and observed ECT being administered to a patient ( $P < 0.001$ ) on completion of the Brief ECT Orientation Module.

There was a significant improvement in knowledge of medical students on all the three domains of the questionnaire for assessment of knowledge about ECT-related facts. Knowledge about indications for ECT at the end of psychiatry clerkship was significantly better as compared with the baseline score ( $P < 0.001$ ). Similarly, knowledge about ECT procedure as well as ECT adverse effects was also found to be significantly better at the end of the Psychiatry clerkship ( $P < 0.001$  and  $P < 0.001$ , respectively) [Table 1].

Those medical students who attended both the lecture as well as the demonstration of ECT administration had a significantly better knowledge on the ECT procedure as compared with those who attended only the lecture on ECT ( $P < 0.001$ ). However, no difference was observed between these students on the other two domains of ECT knowledge, viz., indications of ECT and adverse effects related to ECT [Table 2].

A change in attitudes towards ECT was also observed following the Brief ECT Orientation Module. Although an improvement in attitude towards ECT was observed on all items of the scale, the difference reached statistical significance for only some domains. A significantly greater number of medical students disagreed with the comment “ECT is barbaric” after attending the ECT orientation module ( $P = 0.03$ ). Similarly, a significantly greater number of students agreed to the comment “patients agree to have ECT” after attending the module ( $P = 0.01$ ). Additionally, a significantly greater number of students also agreed with the comments “I would recommend ECT to my patients” ( $P < 0.001$ ) and “I would feel comfortable watching ECT being administered” ( $P = 0.005$ ) [Table 3].

A greater number of students who attended both the lecture as well as demonstration of ECT administration had attitudinal change on four domains as compared with those who attended only the lecture. This significantly greater change was observed for comments “ECT should only be used in serious or life-threatening situations” ( $P = 0.04$ ), “Patients feel coerced into having ECT” ( $P = 0.01$ ), “I would feel comfortable watching ECT being administered” ( $P = 0.01$ ) and “I would feel comfortable administering ECT” ( $P = 0.04$ ).

## Discussion

The current study explored the impact of a Brief ECT Orientation Module on knowledge and attitudes of medical students towards ECT. The medical curricula have been criticized for not incorporating training in ECT to undergraduate medical students in India as well as other countries.<sup>[6,16]</sup>

The Brief ECT Orientation Module comprised a lecture as well as practical demonstration of ECT administration. Educational

**Table 1: Impact of Brief ECT Orientation Module on knowledge about ECT questionnaire among medical students**

	Time of observation	Mean	Std. deviation	t value	P value
ECT Indication	Pre Brief ECT Orientation Module	3.77	1.59	-4.002	<0.001
	Post Brief ECT Orientation Module	4.66	.63		
ECT procedure	Pre Brief ECT Orientation Module	5.86	3.45	-3.678	<0.001
	Post Brief ECT Orientation Module	8.00	2.06		
ECT adverse effects	Pre Brief ECT Orientation Module	1.69	1.23	-8.148	<0.001
	Post Brief ECT Orientation Module	3.70	1.30		

**Table 2: In-between group difference for impact of Brief ECT Orientation Module on knowledge about ECT questionnaire among medical students**

	Witnessed ECT being administered as part of Brief ECT orientation module	Mean	Std. deviation	t value	P value
ECT Indication	No	4.60	.65	-.892	0.377
	Yes	4.76	.62		
ECT procedure	No	7.00	1.49	-3.855	<0.001
	Yes	9.00	1.76		
ECT adverse effects	No	3.94	.62	1.325	0.193
	Yes	3.42	1.59		

**Table 3: Impact of Brief ECT Orientation Module on attitude towards ECT questionnaire among medical students**

	Pre Brief ECT orientation module		Post Brief ECT orientation module		McNemar test
	Frequency	Percent	Frequency	Percent	
ECT is barbaric					
Disagree	33	50.0	35	59.3	P=0.03
Agree	18	27.3	7	11.9	
ECT is outmoded and should never be used					
Disagree	55	50.0	42	71.2	P=0.58
Agree	2	83.3	2	3.4	
There is no evidence that ECT is effective					
Disagree	49	74.2	40	67.8	P=0.51
Agree	6	9.1	4	6.8	
ECT can be life saving for some patients					
Disagree	7	10.6	4	67.8	P=0.44
Agree	51	77.3	40	6.8	
ECT can get patients better more quickly than antidepressants					
Disagree	22	33.3	5	8.5	P=0.001
Agree	32	48.5	39	66.1	
ECT should only be used in serious or life-threatening situations					
Disagree	10	15.2	11	18.6	P=0.25
Agree	47	71.2	33	55.9	
Patients feel coerced into having ECT					
Disagree	15	22.7	15	25.4	P=0.44
Agree	33	50.0	28	47.5	
Some patients agree to have ECT					
Disagree	17	25.8	5	8.5	P=0.01
Agree	34	51.5	39	68.1	
ECT should only be given under the Mental Health Act					
Disagree	8	2.1	9	15.3	P=0.33
Agree	45	68.2	35	59.3	
I would agree to have ECT if I were depressed					
Disagree	34	51.5	30	50.8	P=0.23
Agree	22	33.3	13	22.0	
I would recommend ECT to my patients					
Disagree	24	36.4	2	3.4	P<0.001
Agree	29	43.9	42	71.2	
I would feel comfortable watching ECT being administered					
Disagree	28	42.4	11	18.6	P=0.005
Agree	25	37.9	33	55.9	
I would feel comfortable administering ECT (if I had received the correct training)					
Disagree	12	18.2	5	8.5	P=0.17
Agree	41	62.1	34	57.6	

interventions have been shown to improve the knowledge and attitude of medical students towards ECT.<sup>[4,8,9]</sup> Enabling all medical students to witness an ECT treatment has been reported to be difficult due to logistic issues. However, it was still preferred over the alternative option of using a video about ECT. This was decided because of the fact that a previous study reported that witnessing a video failed to alter students' attitudes towards ECT.<sup>[4]</sup> The lecture included on the module was based on standard texts on ECT.<sup>[27-29]</sup> It is important to include only well-accepted uniform standards on ECT while developing such a module. A substantial variation in ECT practice has been observed globally. This is due to uncertainty about its efficacy and safety<sup>[31,32]</sup> and lack of proper training.<sup>[33]</sup>

A prior study from India reported a poor knowledge about ECT among medical students across all professional years. This misinformation was regarding the procedure as well as adverse effects related to ECT.<sup>[11]</sup> A limited number of medical students had attended a lecture on ECT prior to psychiatry clerkship

in the current study. Even a lesser number had witnessed administration of ECT to a psychiatric patient. The brief ECT orientation module significantly improved the proportion of medical students who had attended a lecture and demonstration of ECT administration. The lecture on ECT improved the knowledge of the medical students on ECT-related facts in all three domains. These included indication, procedure, and adverse effects of ECT. Moreover, the students who had attended a demonstration of ECT administration as part of the module had a significantly greater improvement in the knowledge related to ECT procedure. A study of American second-year medical students found knowledge of the ECT procedure to be poor.<sup>[34]</sup> Ninety-two percent of fifth year medical students in a Hungarian study rated their knowledge of ECT as poor.<sup>[6]</sup> In a study from UK, the medical students' knowledge on adverse effects of ECT was found to be no better than that of the general public. However, the medical students fared better than general public with regards to knowledge about ECT in this study.<sup>[35]</sup> In an Irish study, 39% of medical

students linked ECT to brain damage.<sup>[36]</sup> A multinational study reported the theoretical knowledge of the Iraqi students to be better than that of both the United Kingdom and Egyptian students.<sup>[37]</sup>

The survey among Hungarian medical students found that 61.4% of the students believed that ECT can be used only as a last resort, 53.5% thought ECT to be painful, and more than a third of students believed that ECT is a dangerous, outmoded treatment modality. Acceptance for ECT for self as a treatment modality for a psychotic depressive state was seen among 26% of the students.<sup>[6]</sup> A study of American second-year medical students found significant negative bias against ECT, with 40% feeling that ECT is often misused by psychiatrists and 31% believing that it is used to punish violent and uncooperative patients. Only 30% of medical students in a UK study said that they would “probably” or “definitely” consider ECT for depression.<sup>[35]</sup>

Medical students in India have also been found to have unfavorable attitudes towards ECT. Andrade and Rao<sup>[11]</sup> reported that medical students believed that “ECT is cruel and barbaric,” “that it is misused,” “that it is used to punish violent or uncooperative patients,” “that it is outmoded,” and “that it should be banned.” Also, many students thought that the use of ECT should be governed by law. A high proportion of medical students had unfavorable attitudes towards ECT in the current study as well. The attitude of medical students about ECT showed improvement in certain domains following the brief ECT orientation module in the current study. However, not all domains were found to have a statistically significant improvement. A prior study among medical students reported that witnessing ECT and receiving a lecture was of benefit in shaping positive attitudes than just witnessing ECT alone. Contrary to the findings of the current study, this study reported that watching ECT has a statistically significant benefit over receiving a lecture for only one attitudinal question.<sup>[30]</sup>

Some studies have reported a high percentage of positive attitudes towards ECT among medical students. Benbow<sup>[4]</sup> found that 45% of students in his sample ( $n = 60$ ) believed ECT is a very good treatment and 85% believed ECT is a helpful and useful treatment. Clothier *et al.* found more than half of the students in their sample ( $n = 90$ ) would consider ECT as a treatment for themselves should they be unfortunate enough to develop severe depression with psychotic features. A study among Greek medical students also reported an overall favorable attitude towards ECT.<sup>[7]</sup>

Change in attitudes of medical students following the Brief ECT Orientation Module seemed to lag behind the change in knowledge about ECT. Use of further booster sessions, especially more demonstration sessions of ECT administration, can help improve this. Interaction of medical students with these patients at follow-up would also help improve their attitude further by allaying the misconceptions surrounding

ECT. This recommendation is supported by the observation that UK medical students were found to have more favorable attitude towards ECT as compared with the Iraqi and Greek students. The medical students in UK are exposed to clinical demonstrations about ECT, while those in Iraq and Greece are primarily given didactic lectures only.<sup>[37]</sup>

The current study contributes to the limited literature on improving the knowledge and attitude of medical students towards ECT. The Brief ECT Orientation Module was designed based on standard text on ECT. The study had a high completion rate. We studied the impact in real-life scenario and hence the module could be easily put to practice.

### Limitations

The study had certain limitations as well. The sample size of the current study was relatively small. Moreover, we studied the students at only one medical school. The knowledge and attitude of medical students in different schools across the country should be studied before we can generalize the findings. The study did not explore the role of prior experiences of medical students with media and general life that could have shaped their attitude and knowledge at the baseline. Such information could help improve the orientation module further. Also, students were assessed only once after the ECT orientation module. Stability of the knowledge and attitude change remained unexplored. This could be done by reassessing these students at a later point in time. Finally, the study subjects were completing their clerkship training in the same department. It is likely to have introduced certain biases in the responses.

### Conclusion

The findings of the current study suggest that the Brief ECT Orientation Module is effective in improving the knowledge and attitude of medical students towards ECT. The module is not time intensive and can be administered in a short time. It addresses both theoretical and practical aspects related to ECT. Incorporation of such a module in undergraduate medical curriculum should be given a consideration.

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